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SCHOOL AND SOCIETY

Volume XIII SATURDAY, JANUARY 29, 1921 Number 318

STATISTICS OF REGISTRATION OF THIRTY AMERICAN UNIVERSITIES FOR 1920

THE record-breaking enrollments at thirty representative American colleges and universities in 1919 are substantially maintained this collegiate year, as shown in direct reports now in hand from these institutions. This is in consequence of big freshman classes and the large registration of upper-class men who returned to study in 1918 and 1919 after service in the war.

Of these thirty institutions, twenty-four exhibit increases in grand total enrollment (including part-time and summer school students), the figures for all being 207,407 as compared with 183,620 in 1919. In numbers of full-time regular students, twenty institutions report increases. The full-time totals for twenty-nine, as shown in the accompanying tables, are 3,805 lower than a year ago, but this is due somewhat to closer differentiation between part-time students and regular enrollment.

The thirty universities and colleges whose registrations are herewith recorded are those included for some years in statistical articles in SCIENCE and later in SCHOOL AND SOCIETY. It is customary to say that these universities are neither the largest nor necessarily the leading institutions of the country.

Tables I. and II. are arranged to bring out more clearly than in previous reports the enrollments of regular students devoting their full time to work during the collegiate year. Those taking college and university courses in late afternoon, evening and Saturday classes are listed as part-time students. The grand total figures include full-time regular students, part-time students and summer school students, but do not include extension and correspondence students.

Upon two bases—full-time regular enrollment and entire number of persons instructed—the University of California numerically leads these thirty universities and all others in this country—and probably in the world. The enrollment of full-time regular students is 11,071; the grand total of resident students is 16,379. Counting in the 20,525 citizens of the state who are taking "class instruction," "agriculture extension" and other correspondence courses, the University of California is furnishing instruction to the prodigious total of 36,904 persons. Columbia University is first in grand total enrollment of resident students, 23,793. This total includes 9,004 students resident in New York City and vicinity who are classified by the University under "Extension Teaching." Their work is part-time work, "of character and grade of a college or professional school" and may be accepted toward an academic degree. New York University which upon the basis of its report led in 1919 can not be placed in the 1920 table of full-time regular students as its system of registration does not differentiate sufficiently between full-time and part-time students. On grand total figures, New York University is fifth, following the University of Chicago and the University of Pennsylvania.

In enrollment in liberal arts colleges the University of California is first, with the

TABLE I

	California	Chicago	Cincinnati	Columbia	Cornell	Harvard	Illinois	Indiana	Iowa	Johns Hopkins	Kansas	Michigan	Minnesota	Missouri	Nebraska	*New York	Northwestern	Ohio State	Pennsylvania	Pittsburgh	Princeton	Stanford	Syracuse	Texas	Tulane	Virginia	Washington University	Western Reserve	Wisconsin	Yale
College men	2073	1520	346	1752	1124	2542	1087	1077	1389	373	1175	3039	} 3283	998	} 1909	656	716	} 2715	782	317	1735	1748	627	1441	294	929	509	535	1021	989
College women	3598	1193	515	704	607	—	1305	1089	1354	—	935	1535	}	726	}	438	989	}	27	228	—	460	761	1360	205	—	515	717	1509	—
Engineering	1209	—	945	182	1487	213	1583	—	412	316	643	2094	1155	465	497	336	142	1378	637	480	79	299	355	691	201	223	278	—	1249	688
Law	353	300	85	543	115	941	121	113	162	—	191	347	256	121	237	1153	186	159	187	147	—	155	167	321	61	293	152	161	144	184
Medicine	213	255	241	387	220	439	313	241	262	359	121	491	318	73	220	535	427	217	507	155	—	126	167	216	518	128	180	154	155	119
Grad. school	793	670	134	1267	340	540	343	60	186	191	70	280	408	85	107	177	195	214	615	—	—	131	76	94	9	41	39	26	372	300
Agriculture	528	—	—	—	1102	—	1073	—	—	—	—	—	648	438	385	—	—	1257	—	—	—	—	105	—	—	—	—	—	840	—
Architecture	2	—	—	58	104	34	†	—	—	—	—	†	†	—	122	—	—	58	150	—	—	—	†	†	6	†	43	—	—	60
Art	†	—	—	—	—	—	†	—	—	—	†	†	†	—	†	—	—	—	†	†	—	26	†	—	54	49	266	—	—	†
Commerce	1019	661	—	311	—	444	1732	43	†	—	—	†	109	103	637	6299	260	304	2211	531	—	459	783	†	69	353	104	—	1289	—
Dentistry	336	—	—	6	—	234	229	—	303	—	—	440	392	—	145	—	673	209	719	519	—	—	—	—	102	—	103	228	—	—
Divinity	—	150	—	—	—	17	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	113
Education	†	220	335	2754	—	38	124	9	†	—	11	†	429	185	429	132	—	565	498	227	—	79	152	547	239	16	—	—	—	450
Forestry	†	—	—	—	†	—	—	—	—	—	—	†	†	—	—	—	—	—	—	—	—	—	275	—	—	10	—	—	—	24
Journalism	—	—	—	130	—	—	†	85	†	—	—	†	†	171	†	†	—	†	—	†	—	—	—	†	†	34	12	—	—	215	—
Music	†	—	—	—	—	—	101	—	†	—	222	†	†	—	†	—	319	—	†	†	—	—	—	—	79	40	—	—	117	99
Pharmacy	117	—	—	519	—	—	208	—	70	—	84	93	109	—	62	—	—	120	—	303	—	—	—	—	—	—	—	122	78	—
Veterinary	—	—	—	—	76	—	—	—	—	—	—	—	—	—	—	22	—	106	30	—	—	—	—	—	—	—	—	—	—	—
Other courses	830	34	98	—	—	41	31	—	146	73	—	226	346	—	—	115	196	28	—	—	—	—	731	—	—	—	164	115	29	679
Deduct dup	—	321	11	125	—	—	—	197	7	—	—	87	—	105	339	247	—	174	—	—	—	994	180	547	224	424	45	—	172	41
Total	**11071**	**4682**	**2688**	**8488**	**5175**	**5483**	**8250**	**2520**	**4277**	**1312**	**3452**	**8458**	**7437**	**3260**	**4411**	**9616**	**4103**	**7156**	**6363**	**2907**	**1814**	**2449**	**4019**	**4202**	**1608**	**1630**	**23**	**2058**	**6846**	**3664**
Part-time	300	1306	987	9004	—	226	—	—	—	1825	—	500	103	?	223	?	2300	—	2935	2333	—	—	431	—	443	—	237	—	158	232
Summer ses.	6436	5406	—	9780	2174	2077	1402	1479	1388	442	924	2225	2025	?	1096	1755	1164	1409	1281	824	—	685	610	1629	1206	1779	—	1214	3578	—
Deduct dup	1428	—	152	3479	—	?	?	414	430	376	340	1025	—	—	—	849	—	766	—	160	—	—	430	679	202	—	25	—	1076	—
Gd. tot., Nov. 1, '20	**16379**	**11394**	**3523**	**23793**	**7349**	**7786**	**9652**	**3585**	**5235**	**3203**	**4036**	**10158**	**9565**	?	**5730**	**10522**	**7567**	**7799**	**10579**	**5904**	**1814**	**3134**	**4630**	**5152**	**3055**	**3409**	**2520**	**3272**	**9506**	**3896**
" " Nov. 1, '15	10555	7968	2524	11888	6351	5698	6150	2347	3138	1586	2806	6684	5376	3868	3356	6656	4408	5451	7404	3569	1615	2061	4012	3572	2160	1008	1264	1825	6810	3303
" " Nov. 1, '10	4552	5883	1416	7411	5169	5329	4659	2132	1957	890	2246	5339	4972	2678	2733	3947	3543	3181	5187	—	1451	1648	3248	2597	1985	688	796	1274	4745	3287
" " Nov. 1, '05	3631	4557	—	4755	3871	5283	3635	1377	1700	688	1706	4521	3940	1887	2635	2912	2791	2057	3430	—	1361	1606	2776	1190	838	696	—	856	3083	3477
Exten. courses	20525	?	—	116	—	—	—	2287	181	—	1350	—	4207	223	574	491	—	—	1339	545	—	—	807	2232	—	?	1457	2100	13124	—
Teaching staff	852	328	353	1498	750	800	604	202	275	400	262	500	800	?	287	} 541	492	569	960	562	197	294	436	270	362	95	295	370	900	569
Administrative staff	60	34	17	60	22	?	36	23	29	13	11	27	9	?	15		14	13	42	17	17	40	35	7	11	16	18	15	26	166

* New York University full-time and part-time students are not differentiated.

† Included elsewhere.

TABLE II

University	Regular Students Full-time	Rank	Students All Resident	Rank
California	11,071	1	16,379	2
Columbia	8,488	2	23,793	1
Michigan	8,458	3	10,158	6
Illinois	8,250	4	9,652	7
Minnesota	7,437	5	9,565	8
Ohio State	7,156	6	7,799	10
Wisconsin	6,846	7	9,506	9
Pennsylvania	6,363	8	10,579	4
Harvard	5,483	9	7,786	11
Cornell	5,175	10	7,349	13
Chicago	4,682	11	11,394	3
Nebraska	4,411	12	5,730	15
Iowa State	4,277	13	5,235	16
Texas	4,202	14	5,152	17
Northwestern	4,103	15	7,567	12
Syracuse	4,019	16	4,630	18
Yale	3,664	17	3,896	20
Kansas	3,452	18	4,036	19
Missouri	3,260	19	3,260	25
Pittsburgh	2,907	20	5,904	14
Cincinnati	2,688	21	3,523	22
Indiana	2,520	22	3,585	21
Stanford	2,449	23	3,134	27
Washington Uni.	2,308	24	2,520	29
Western Reserve	2,058	25	3,272	24
Princeton	1,814	26	1,814	30
Virginia	1,630	27	3,409	23
Tulane	1,608	28	3,055	28
Johns Hopkins	1,312	29	3,203	26
NewYork Univ.	?	?	10,522	5
Totals	132,091		207,407	

University of Michigan second. The size order of the ten largest is as follows: California 5,671, Michigan 4,574, Minnesota 3,283, Texas 2,801, Ohio State 2,715, Chicago 2,713, Harvard 2,542, Columbia 2,456, Illinois 2,392, Stanford 2,208. Counting men alone Michigan this year takes the lead from Harvard in arts college enrollment, with 3,039 students. The size order for men undergraduates of the five largest colleges follows: Michigan 3,039, Harvard 2,542, California 2,073, Columbia 1,752, Princeton 1,735.

Michigan also leads numerically in departments of science and engineering, with 2,094. Illinois is second with 1,583, Cornell is third with 1,487, Ohio State is fourth with 1,378 and Wisconsin is fifth with 1,249. These enrollments are considerably below that of the Massachusetts Institute of Technology, which is not included in this list.

The five largest law schools in this list are as follows: New York University (not differentiated) 1,153, Harvard 941, Columbia 543, California 353, Michigan 347.

The numerical order of the five largest schools of medicine is: New York University (not differentiated) 535, Tulane University of Louisiana 518, Pennsylvania 507, Michigan 491, Harvard 439.

In non-professional graduate students the order for the five largest universities follows: Columbia 1,267, California 793, Chicago 670, Pennsylvania 615, Harvard 540.

Ohio State has taken the numerical lead from Cornell in enrollment in agriculture, with 1,257 students. Cornell has 1,102 students; Illinois is third with 1,073, Wisconsin is fourth with 840, Minnesota is fifth with 648. The number of students in agriculture at the nine institutions of this list offering courses is 165 smaller than in 1919, and 815 smaller than five years ago at the eleven institutions then teaching agriculture.

Courses in architecture show a steady diminution in numbers. The University of Pennsylvania has the largest enrollment, with 150 students. Cornell is second with 104, Yale has 60, Columbia and Ohio State have 58 each.

Comment was made in the preceding article of this series upon the exceptional expansion in the United States of departments of collegiate training for business life. The growth, so far as this list in concerned, was sharply arrested this year. The 1920 total of commerce students in fourteen institutions was 17,721, as compared with 21,638 in 1919, a drop of 18 per cent.

The School of Commerce and Finance of New York University leads in enrollment of commerce students with 6,299 students (not differentiated as to full-time and part-time study). The Wharton School of the University of Pennsylvania is second with 2,211 students; Illinois is third with 1,732, Wisconsin is fourth with 1,289, and California is fifth with 1,019.

The University of Pennsylvania has the largest dental department, with 719 students; Northwestern is second with 673; Pittsburgh is third with 519; Michigan is fourth with 440, and Minnesota fifth with 392.

Of the three divinity schools in this list, Chicago is first with 150 students. Yale is second with 113. Harvard is third with 17, to which 33 part-time students may be added.

Teachers College of Columbia University continues to be by far the largest school of education in this country. The Teachers College figures of 2,754 students embrace 1,535 in education and 1,219 in practical arts. Ohio State is second with 565, Texas is third with 547, Pennsylvania is fourth with 498, and the new school of education at Yale is fifth with 450 students.

The School of Forestry at Syracuse is by far the largest in this list.

Wisconsin continues to have the most students in journalism, 215. Missouri ranks second with 171, and Columbia third with 130 students in the Pulitzer School.

Northwestern University is first in the number of music students, 319, followed by Kansas, 222 (including some art students), Wisconsin 117, Illinois 101, and Yale 99.

In departments of pharmacy, the order of the five largest is: Columbia 519, Pittsburg 303, Illinois 208, Western Reserve 122, Ohio State 120.

The enrollment in veterinary medicine continues to drop. Ohio State has the largest number, 106, followed by Cornell 76, Pennsylvania 30 and New York University 22.

Part-time students are greatest in number at the urban universities where opportunities are afforded for late afternoon, evening and Saturday work in an increasing number of college subjects. The table discloses the extent to which the universities considered are cooperating in placing higher educational advantages within the reach of all who are qualified.

That the popularity of summer schools continues undiminished is manifest in the figures of the table. Columbia continues foremost in attracting teachers and others for six weeks' sessions, with an enrollment of 9,780. The next nine in order are as follows: California 6,436, Chicago 5,406, Wisconsin 3,578, Michigan 2,225, Cornell 2,174, Harvard 2,077, Minnesota 2,025, Virginia 1,779, New York University, 1,755.

The present table differentiates between teaching staff and administrative staff. There is manifest vagueness in the designation of officers who may be termed administrators. Although the reports are not quite uniform in presenting university teachers as distinguished from extension teachers and laboratory assistants, the figures have more interest and significance than those supplied under the former combined term "teachers and officers."

The California totals for administrative officers and teaching staff are for degree-giving departments and do not include summer sessions or any extension work. Assistants are not counted in the Chicago teaching staff figures. The Columbia teaching staff as reported takes in those instructing in summer sessions and extension teaching. The Harvard teaching staff figures are approximate, including library

staff, clerks, stenographers, etc., the Illinois summary mounts to 904. The Iowa teaching staff number of 275 does not include teachers in the university high and elementary schools. The Johns Hopkins teaching figures of 400 are estimated. In addition to the 500 given for the Michigan teaching staff, there are about 200 non-resident lecturers and resident graduate assistants, a library staff of 50, etc. The Minnesota teaching staff total is estimated. The 562 Pittsburgh teachers listed are for classified and unclassified students.

The following paragraphs explain statistics presented in Table I. and give additional information.

The 1920 enrollment of the University of California shows an increase over 1919 in every department with the single exception of agriculture, in which there are 70 fewer students. The total gain for full-time regular students is 1,636, or 17 per cent. About one half of this gain is attributable to the 826 students in the new Junior College Department in the Southern Branch of the University, located at Los Angeles. There are 972 students in engineering and 237 in chemistry. Students taking art, education, library economy and music are included in the totals for men and women in the college department. Detailed figures as to the University of California's extension courses follow: teachers' curricula 1,108; correspondence 3,042; class instruction 10,750; agriculture extension (correspondence) 5,625; total 20,525.

This year sees an increase over 1919 in the full-time regular enrollment at the University of Chicago. The students in late afternoon, evening and Saturday classes of college grade, tabulated in the 1918 and 1919 reports under other courses, are placed under the heading part-time students in this report. No figures are submitted as to the extension courses of the university.

The largest growth at the University of Cincinnati over 1919 is the 15 per cent. increase in the engineering college. The students listed in the table under other courses are those taking nursing and health. Part-time students embrace 607 in the evening classes in liberal arts, and 380 in commerce.

Gains in substantially all departments over 1919 are to be noted in the Columbia University enrollment. The number of students in education at Columbia, 2,754, is reported as including 1,219 students in practical arts.

The report from Cornell University shows that there are 4,133 men students and 1,042 women students registered in the entire university. The enrollment is 543 smaller than in 1919, the decrease being largely in engineering and in agriculture. Forestry students at Cornell are included under agriculture.

The enrollment at Harvard is 210 larger than in 1919. The freshman class is considerably increased in size over last year's, but there is "a corresponding loss owing to the large number of men who returned last year to complete their work after taking part in the war and who have now left." The new School of Education has 38 full-time and 85 part-time students. It is a graduate school to which, for the first time at Harvard, women are admitted. The Engineering School, now in its second year, has nearly doubled its enrollment. In addition to the 17 regular students in divinity given in the table, there are 33 part-time students. This total registers a loss as compared with 1919. Taking the whole university, about 50 per cent. of the students come from homes outside of New England; for the college the percentage this year is 43.7.

Slight gains over 1919 in most of the departments are to be noted in the University of Illinois registration, the total increase in regular students being 198. There are small decreases in engineering, agriculture and music. The total number of men students in the university is 6,372, and of women 1,878. The 31 students listed under other courses are taking library courses.

There are 164 more students at Indiana University than in 1919. The extension courses in the table include 510 enrolled in correspondence study.

The 1920 increase of the State University of Iowa over 1919 is 660 students. There are increases in every department. Students in art, in commerce, in education, in journalism, and in music are included in the college department. The 146 students listed under other courses are in the school of nursing. The extension courses include 52 in Saturday classes and 129 in correspondence study.

The grand total enrollment of Johns Hopkins University is larger than in 1919. There is a slight decrease in full-time regular enrollment.

The full-time regular enrollment at the University of Kansas is 128 less than last year; the grand total enrollment of students is 34 larger.

The University of Michigan figures run 203 more than 1919 for full-time regular students and 987 more for grand total enrollment. Students in architecture are counted in the engineering enrollment. Students in education, in chemistry, in forestry, in journalism, and in music are included in the college department enrollment. The 226 students listed under other courses are taking nurses training.

The University of Minnesota total for engineering includes 162 in the School of Mines. Students in forestry are covered under agriculture. The 346 students given under other courses are in the nurses school and school for dental hygienists.

Every department of the University of Missouri has a larger enrollment than a year ago, the total increase being 430 or 15 per cent. No report is made as to the number of summer school students.

There is a 4 per cent. increase in full-time regular enrollment of the University of Nebraska as compared with 1919 and an increase of 19 per cent. in grand total enrollment. Students in architecture are listed under engineering. Students in journalism are listed under the arts and science college; students in music under fine arts. The enrollment of the entire University includes 3,004 men and 1,960 women students.

The total of students in commerce and finance at New York University, 6,299, as given in the table, includes 120 students in the Graduate School of Business Administration. The commerce enrollment covers students in journalism. Details as to students listed under other courses follow: retail selling, 40; women's law class, 75.

Owing to the differentiation adopted in this study between full-time regular students and part-time students, the total of Northwestern University for 1920 drops as compared with 1919. The 2,300 students in the university's school of commerce located in Chicago are part-time students. Northwestern's grand total enrollment is substantially the same as a year ago. The 196 students listed under other courses are men and women taking oratory.

An 8 per cent. gain over 1919 in full-time regular enrollment is recorded at Ohio State University. Of the total registration of the university, 5,309 are men and 1,847 are women. The figures for commerce include students in journalism. There are 28

students taking applied optics listed under other courses.

The statement in regard to Northwestern University applies also to the University of Pennsylvania, where the grand total enrollment is 31 per cent. larger than in 1919. The distinction between full-time and part-time students lowers the total, as compared with a year ago. Among the 2,935 part-time students are 621 in the college courses for teachers and 1,812 in the Evening School of Finance and Accounts. Pennsylvania's extension courses include 255 in college extra-mural and 1,084 in extension schools of finance and commerce.

The preceding statements apply with equal force to the University of Pittsburgh, where there are 2,333 part-time students taking work yielding college credit. The grand total gain over 1919 is 30 per cent. Students listed under science and engineering include 49 in chemistry. Students in art and in music are counted under education. Students in journalism are included under commerce, which at Pittsburgh is designated economics.

The Princeton enrollment is a trifle under the record registration of 1919.

The full-time regular registration at Leland Stanford Junior University is 8 larger than in 1919. Due to increase in the summer school enrollment the grand total is 173 greater. Students counted under commerce take the course designated at Stanford as economics.

The grand total enrollment of Syracuse University is 233 students larger than a year ago. A noteworthy feature is the rapid growth of the School of Commerce, Finance and Journalism, which was begun in 1919 and now has an enrollment of 783 students. The 731 students listed under other courses are classified as follows: Fine Arts (music, art, architecture and belle lettres) 295; oratory, 102; home economics, 212; library economics, 37; nursing, 85.

The 691 students at the University of Texas listed under science and engineering include 118 in "mines and metallurgy." Students in commerce, in journalism, in library economy, and in music are represented in the college department number. In addition to the 1,629 summer school students of college grade, there were 366 summer "normal" and 13 "vocational and industrial education" students. Of the 2,232 students in extension courses, 2,124 are taking correspondence study. The full-time regular enrollment of the university is larger than a year ago.

Because of differentiating part-time students the total of Tulane University of Louisiana is lower for 1920 than for 1919. The grand total of students is also 178 students lower. There have been small gains in most of the departments of the university.

A slight growth is shown in the 1920 registration of the University of Virginia, the advances being in the college, law school, medical school and graduate school. The summer school showed an increase of twenty per cent. There are two summer terms at the University of Virginia. The report is not ready on the extension courses.

The figures for Washington University, Saint Louis, show an increase of thirteen per cent. in full-time regular enrollment. There are 164 students in nurses training, listed under other courses.

A slight increase over the figures of a year ago, which in turn exceeded any prior enrollment, is the situation at Western Reserve University. The total under other courses includes 36 students in library economy and 79 in "applied social sciences." Under the term extension are covered

courses for teachers in the Western Reserve school of education.

The 1919 enrollment of the University of Wisconsin, which surpassed all earlier records by 40 per cent., is practically equalled in 1920 for full-time regular students and is exceeded by 457 in the grand total figures which include summer session and part-time students. The extension and correspondence courses have more than 13,000 additional enrollment.

Yale this year registers the largest attendance in its history, with nearly ten per cent. more full-time students than in 1919. There are 679 in the freshman class whose courses are not determined and hence are not represented in the classified table. The total given for architecture represents students in art also.

RAYMOND WALTERS
LEHIGH UNIVERSITY

THE PHYSICAL TEST OF A MAN

ONE of the strongest of the natural forces with which man is constantly contending is gravity, or the tendency of his body to be attracted and held to the surface of the earth. The infant first crawls, then creeps on its hands and knees, and finally by the aid of crib or chair or mother's assistance, gets onto his feet. The raising of the head, the straightening of the spine, grasping with the hands and feet, and striking out and kicking with the arms and legs are only preliminary movements necessary to prepare for the standing position. All the twisting, rolling, wriggling, squirming, crawling, creeping, and occasional stiffening and straightening of the trunk and limbs an infant can be induced to do, the better it will be for his future development.

A child must first get a footing in the world and be able to move in the erect position before the adult may properly function as a human being. In other words, the child must pass in a few months from the animal stage of its existence where all its organic inheritances for thousands of years had fitted its body to resist the force of gravity in a horizontal plane, to a vertical position where gravity acts in a perpendicular plane. Is it any wonder that over 75 per cent. of our youth of both sexes have a bad posture, and that so few ever attain the ability to meet this comparatively new strain—the ability to sit and stand erect?

If there is any doubt as to the seriousness of failing to measure up to this test of young manhood, ask your physician as to the fundamental causes of the following list of physical imperfections: spinal curvature, knock knees, bow legs, flat feet, drooping head, round shoulders, weak backs, varicose veins, hernia, sagging of the abdominal organs, misplacement of the pelvic organs, and many other physical weaknesses and defects which afflict mankind.

These prevailing weaknesses are mainly due to the failure of the body to make provision to resist this constant force of gravity to pull us down from our top-lofty, vertical position to a horizontal plane. We pay our respect to this natural force by availing ourselves of every opportunity to lean, sit and recline at our work throughout the day, and we finally yield to it completely by assuming a horizontal position for sleep at night.

Many of these bodily weaknesses and imperfections to which I have referred have arisen largely from civilized man's neglect to care for the form and strength of his bodily mechanism as an African Zulu or Sandwich Islander would do. Instead of priding himself upon his ability to sit straight without support for his spine and legs, as shown by many of the savage

tribesmen, civilized man luxuriates in upholstered chairs and lounges moulded to his physical defects,—and then wonders why he has a weak back and can not stand in a vertical position.

Yet the ability to stand erect, thereby relieving the arms and hands from supporting the body, and conserving their strength to be directed into self-chosen activities constitutes man's supreme inheritance.

How is this ability attained? By gradually strengthening and developing the muscles all up and down the front and back of the trunk and legs. These muscles hold the body balanced in perfect equilibrium over the two feet, which, in length and breadth taken together, average about one sixth the perpendicular height. When the body is thus accurately balanced on the bones of the legs and spine, gravity is acting parallel with these bones, and consequently the strain is taken largely from the muscles and thrown onto the bones and ligaments.

If one relaxes from this vertical position, and stands with the body flexed or bent forward at the knees, back and neck, the strain is then brought upon the muscles and after a little while the effort of standing becomes intolerable. But strain or pain means loss of power and energy. This is the reason why a perfect poise in standing or sitting is the most economical position that can be maintained.

Although the ability of a man to stand on his feet and maintain perfect poise is of vital importance, it is not the only requisite. He has other things to do. During the growing period of youth, while one is acquiring his stature, gravity should be used so as to stimulate the growth force, not to retard it, as is often done by keeping children too long on their feet either in working or playing. It is better to continually fall and try to rise again than to remain standing too long.

A young man having acquired full stature, and learned to stand and sit correctly in defiance of the laws of gravity, must generate still more force and let gravity act in harmony with his physiological necessities and his mental and physical desires. In other words, he must add to his weight as well as his height before he can cut any figure in the world, bear his own burdens, fight his own battles and render service to others. This means that he must extend his growth force and developmental energies into body breadths, depths and thicknesses as determined by given measurements, as well as into lengths or vertical directions. The only way of adding effective weight is through the development of the muscles which constitute nearly 50 per cent. of all the tissues of the normal man, and determine to a large extent the size and function of the other organs. By this use of the term muscle, I do not refer to the large superficial voluntary muscles only, but to the muscles of digestion, circulation, respiration, glandular organs, special senses, etc. The only way that any muscle tissue may be developed is through the activities; and our responsibility for the proper training, nutrition, and consequent development of this part of our anatomy is great indeed.

The primary object of all the efforts of physical education through athletic games, sports, plays, and general gymnastics, is to add to the power and efficiency of mind and body through the agency of the muscular system. This efficiency is determined largely, I shall hope to show, through the intimate relation of body height and weight. These two factors are always taken into consideration in publishing the names of players on the great football teams, boat crews, and in other athletic organizations.

Why? Simply because in a vague way, there is thought to be a correlation between the height and weight and a man's physical efficiency. Up to the normal limit, a man's strength is supposed to increase with his height and weight. Men are matched in boxing, wrestling, and tug-of-war contests according to their weights, such as light weights, 135 lbs.; middle weights, 160 lbs.; heavy weights, 175 lbs.; etc. In boxing and wrestling, at least, this weight classification is further refined by having a bantam-weight class of 115, a feather-weight class of 125 and a heavy-weight class for all men over 175 lbs.

No team, crew or individual contestants would be considered well-matched if they had to give or accept much difference in weight from their opponents. So we find in studying the characteristics of different types of athletes and gymnasts that variations in stature or total height, sitting height, height of knee, and relative length of trunk and limbs, tend to favor different classes of athletic performers. As a rule, the oarsman is favored by having a long body, and relatively short legs, the middle distance runner, jumper, and hurdler by having long legs and a relatively short body; the gymnasts by having short arms; and the heavy lifter by having short thighs. And so through the whole range of athletic specialists, each gains some mechanical advantage from the development that is peculiar to him.

Woman's incapacity for certain kinds of physical activities as compared with man's, arises largely from the fact that she is on the average 25 lbs. lighter and five inches shorter than he is. The whole Japanese race averages only 5 ft. 4 in. in stature, due largely to their relatively short legs, that have undoubtedly been made so by their long-continued racial habit of sitting on their heels with their legs sharply bent under them. These facts and many more have come to us through our studies in anthropometry and the classification of physical measurements.

Age, sex, and race are rightly considered the dominant factors in evaluating any body measurements, and the height, weight and chest girth are admittedly the most important of these measurements. Moreover, there is a probable standard of height, weight, and chest girth for every age, each sex and all the different races. These facts are known in a general way by those whose business it is to make physical examinations, such as surgeons in the army and navy, life insurance examiners, and physicians who examine school and college students, candidates for civil service, and employees in all the different trades and industries where physical conditions are now being taken into consideration.

So, in theory at least, it may be well said in support of the relationship of bodily measurements and vital functions "that the greater advance we may make in inquiries of this nature, the more perfectly is the law of proportion that governs the typical man demonstrated; rendering it equally apparent how undue or imperfect development of any one organ or function throws the remaining organisms out of gear, and constitutes a greater or less tendency to disease."

In popular estimation it takes so many inches and so many pounds and a certain size chest girth to make a man, and this estimation is borne out largely by experience. Hence, the universal interest in the physical measurements of the human body. However, those of us who are engaged in making physical measurements of men by the thousand soon learn the limitations of the information which comes to us from

this source alone. While it is true that the strength and functional capacity of a part generally increases with the size of that part, other things being equal, the number of cases where other things are not equal is so numerous that the generalization should be greatly modified.

The measurements alone do not tell us anything of the texture and quality of the parts covered, *i.e*, how much is fat or bone, and how much muscle, nor do the measurements alone give us any information of the innervation of the parts upon which power and efficiency so frequently depend. Even if we accept the physical measurements of a man as an indication of his potential power, as so many of us almost intuitively do, we are soon taught by experience that there is in many men an unknown equation which makes for power and efficiency which has never been determined and which can only be measured by an actual test.

The important question is, what is this unknown equation and how can it be simply and practically tested and numerically expressed? With a good many others, I have been wrestling with this problem for years by the way of strength tests, endurance tests, speed tests, etc., but have never come across any one that satisfied me or quite met the demands of the situation. It is said that every pioneer or inventor or discoverer, if he lives long enough, goes through three stages in his career. The first one is where his propositions are unfounded and absurd; the second stage is where if proven true, they are not original; and the third stage is where they are so self-evident that any fool ought to have thought of them. I have now arrived at the third stage in my career, and want to share what seems to me the simplest and most effective of all tests of physical ability with the other fools who have been looking for one. I have dwelt at some length upon gravity as a constant force to be overcome and its relation to the height and weight and other measurements of the body. The new test that I offer consists of using the constant factors of height and weight which one always has with him, in a little different way than is commonly thought of. It is so simple and yet so effective for testing the strongest man or weakest woman or child that one feels almost like apologizing to the general public for mentioning it.

THE NEW TEST

The individual to be tested stands under a cardboard disk, or paper box cover, heavy and stiff enough to hold its form, about twelve inches in diameter, held or suspended from ten to twenty or more inches above his head. He is then requested to bend forward, flexing the trunk, knees and ankles, and then by a powerful jump upward, straightening the legs and spine, to try to touch the cardboard disk with the top of the head. Swinging the bent arms forward and upward at the time the legs, back and neck are extended, will be found to add to the height of the jump. When the disk has been placed at the highest point above the head that can be just touched in jumping, this height is measured. The difference between this height and that of the total stature is of course the height actually jumped.

Now, if this height is multiplied into the total weight of the body at the time of making the jump, it will give one some idea of the amount of work done in foot pounds as usually calculated. But it will be observed, no credit is given for lifting the full weight of the body from the deep knee or squatting position to the perpendicular standing position, which difference represents about half the height. The total work

depends upon how heavy and how tall the individual is. Thus, if a man weighs 150 lbs. and is 70 in. tall, one half of that height would be 35 in., which, multiplied into the full weight and divided by 12 (to reduce inches to feet) would equal 437 foot pounds, thus:

$$\text{Formula } A = \frac{\text{Weight} \times \text{Half the Height}}{12} = 437 \text{ F. P.}$$

In estimating work done outside of the body, this amount of energy expended is not always taken into consideration as power expended. In the new test, however, an individual must not only do a certain amount of work in physical effort in rising from the crouching attitude to the perpendicular position, but he must generate force enough to project his body 10, 20, or 30 inches into the air, above the height attained in the standing position. If this person weighing 150 lbs. should jump 20 in. above his height, this weight multiplied by 20 and divided by 12 would equal 250 F. P. thus:

$$\text{Formula } B = \frac{\text{Weight} \times \text{Height jumped}}{12} = 250 \text{ F. P.}$$

This amount of work done would be acceptable according to the usual methods of estimating man power. Both the *A* and *B* formulæ are frequently used for tests of the physical basis of efficiency. The height jumped will depend a good deal upon the length of the legs and trunk that make up the total stature, the tall man being favored —therefore an exact ratio of the height jumped to the stature would seem to make the test more equitable. Thus, if the man weighing 150 lbs. was 70 in. tall and jumped 20 in. above his head, the ratio of 20 to 70 would account for this advantage in height. This ratio may be obtained by the following formula:

$$\text{Formula } C = \frac{\text{Height jumped} \times 100}{\text{Total height}} = .285$$

Although the formulæ *A*, *B*, and *C* are interesting in enabling one to account for his efficiency or deficiency in the test, these formulæ may be dispensed with in favor of one including the three important factors which we are considering. If then in the new test we multiply the total weight by the height jumped and divide this product by the total height of the person in inches the result will give a fair index of the effort made in the smallest number of figures. This is always an advantage in making a test and handling the data for statistical purposes.

Thus if the individual tested weighed 150 lbs. and jumped 20 in. above his head and was 70 in. tall, the formula for his efficiency index would be as follows:

$$\text{Index} = \frac{\text{Weight} \times \text{Jump}}{\text{Height or stature}} = \frac{150 \times 20}{70} = 42.8$$

As an example of the way this formula works out in the practise, I have selected the first ten pupils graded according to this test from the Sargent School of some four hundred pupils. It must be borne in mind that none of the girls had any preliminary practise for this particular test, other than

TABLE I

First Ten out of Four Hundred Tested at the Sargent School of Physical Education, Cambridge, Mass.

	Class	Age	Jump, Inches	Height, Inches	Ratio Jump to Height	Weight, Lbs.	F. P. of Work	Index
1. L. V. M..	Jun.	20	20.0	67.5	.300	152	253	45.0
2. M. N. G.	Sen.	20	20.0	61	.328	132	220	43.2
3. M. E. W.	Sen.	20	20.5	65.5	.312	132	226	41.3
4. M. J. O..	Jun.	20	18.8	60.2	.312	132	217	41.0
5. H. W....	Sen.	22	15.3	64.2	.238	176	224	40.5
6. M. E. F..	Fresh.	19	16.9	60.6	.260	145	204	40.5
7. J. I. J...	Fresh.	23	14.0	68	.206	196	240	40.3
8. E. M. B..	Sen.	23	20.5	61.5	.333	117.5	200	39.1
9. H. A. B..	Fresh.	23	16.0	68	.236	163	217	38.2
10. B. S....	Fresh.	18	17.5	64.5	.271	146	213	38.0
Average...		20.5	17.9	64	.279	148	221	40.95

that which comes to them in their regular school work. With the freshmen at least it was largely a question of natural ability. (See Table I.)

No. 1 is a vigorous athletic girl, being 67.5 inches in height and 152 lbs. in weight. She jumps 20 inches above her head which is .300 of her height, does 253 foot pounds of work (as shown by multiplying her weight by her height jumped and dividing that product by 12) and has an energy index of 45.0.

No. 2 has an energy index of 43.2. Although she is shorter and lighter than some of her mates and does less foot pounds of work than four others in the group, she lifts her weight higher in proportion to her height, and therefore gets a high score. She is an earnest student and a good all-round athlete, but not a star.

No. 3 is the star athlete of her class, excelling especially in running and jumping. In this test she jumps 20.5 in. above her height, but she is 4.5 in. taller than No. 2 and does not lift her weight as high in proportion to her height.

No. 4 although of the same weight as Nos. 2 and 3, and jumping the same proportion of her height as the girl above her, does not jump as high and therefore gets a little lower index.

No. 5 jumps nearly five inches less than those who have preceded her, but she is a strong husky girl weighing 176 lbs. and to raise this weight a less height requires a high index.

No. 6 has the same index as No. 5, although she is 3.6 in. shorter and weighs 31 lbs. less. She makes up for this difference in weight and height by jumping an inch and a half higher, and jumping a greater per cent. of her height.

No. 7 is the heaviest girl in the school, weighing 196 lbs., and is 68 in. in height. As might be expected she jumps the least of any in the group, and the least percentage of her own height. But she projects 196 lbs. fourteen inches above her head and thereby does 240 F. P. of work—which makes her the second strongest one on the list.

No. 8, although she lacks the mechanical advantage in height that a girl of 67 in. or 68 inches would possess, and has the least advantage in weight of any in the group, still manages to project her 117.5 lbs. 20.5 in. above her head, which is the highest ratio of her own height of any in the group (.333). This girl is quite strong for her height and weight and very energetic—she also has the distinction of being the highest ranking scholar in her class.

The records of Nos. 9 and 10 are self-explanatory. They are girls of fine natural physiques, good athletes, superior to the average in height and weight, and will show a much higher index after a little more training.

I have commented upon the variations in physique as shown by the height and weight in these seven individuals, because these variations illustrate the compensating nature of the test. With a variation of 7.4 in. in height and 78.5 lbs. in weight, there is little difference in their physical ability as shown by the test, as all were able to make the first ten in the school. What one lacks in height and length of limb, she makes up in strength, speed and energy; what another lacks in weight she makes up in height and energy; what still another one lacks in energy and speed she makes up in superior height, strength and weight; while still another who lacks both in height and weight has to make up for this deficiency by greater determination, will power, nerve force, or some other un-

known quality, that makes for physical efficiency. If any one of the factors chosen for the formula had been adopted as a standard, it would have brought a little different type of girl to the front. This is shown by the following table:

TABLE II

Relative Standing of First Ten According to Other Factors as, Jump, Height, Weight, etc.

Index	Jump	Height	Ratio of Jump to Height	Weight	Foot Pounds
1. L. V. M.	1. M. E. W.	1. J. I. J.	1. E. M. B.	1. J. I. J.	1. L. V. M.
2. M. M. G.	2. E. M. B.	2. H. A. B.	2. M. M. G.	2. H. W.	2. J. I. J.
3. M. E. W.	3. L. V. M.	3. L. V. M.	3. M. E. W.	3. H. A. B.	3. M. E. W.
4. M. J. O.	4. M. M. G.	4. M. E. W.	4. M. J. O.	4. L. V. M.	4. H. W.
5. H. W.	5. M. J. O.	5. B. S.	5. L. V. M.	5. B. S.	5. M. M. G.
6. M. E. F.	6. B. S.	6. H. W.	6. B. S.	6. M. E. F.	6. M. J. O.
7. J. I. J.	7. M. E. F.	7. E. M. B.	7. M. E. F.	7. M. M. G.	7. H. A. B.
8. E. M. B.	8. H. A. B.	8. M. M. G.	8. H. W.	8. M. E. W.	8. B. S.
9. H. A. B.	9. H. W.	9. M. E. F.	9. H. A. B.	9. M. J. O.	9. M. E. F.
10. B. S.	10. J. I. J.	10. M. J. O.	10. J. I. J.	10. E. M. B.	10. E. M. B.

It will be observed by referring to Table II. that, if the height of the jump had been the only factor considered M. E. W. and E. M. B. would have come to the front as 1 and 2; or if height and weight had been the prime factors, J. I. J., who was 10 in the jump, would have been put in the first place. If the height jumped in proportion to her own height had been accepted as the final test, E. M. B. would have reached first place, though she ranked 10 in weight and strength. Then again, if foot pounds of work done as usually calculated, had been adopted as the standard, J. I. J. would have come up from 10th place in height really jumped and ratio of height jumped to second place. The foot-pound formula is perhaps the best test for real strength and gives the taller and heavier girls a decided advantage.

It must be admitted, however, that the three girls who come the nearest to the front in all the factors that make up the test are those that stand 1, 2, and 3, according to the index adopted. What this index as thus obtained really indicates is a question that may well engage our attention.

First, no one would deny that the ability to project one's weight 20 or 30 inches into the air, against the force of gravity requires *strength* on the part of the muscles engaged in the effort. No one would deny that the effort would have to be made with a certain degree of velocity or *speed* in order to create impetus enough to carry the body twenty inches above its own level in the standing position. Further no one would deny that back of the requisite strength of muscle fibers and rapidity with which they are made to contract there must be *energy*, "pep," "vim," vitality, or whatever it may be termed which drives our internal machinery. Overlapping all of course is the skill or dexterity with which the jump is executed.

I think, therefore, that the test as a whole may be considered as a momentary try-out of one's strength, speed, energy and dexterity combined, which, in my opinion, furnishes a fair physical test of a man, and solves in a simple way his unknown equation as determined potentially by his height and weight. It will be observed that the parts tested, namely, the muscles of the feet, calves, thighs, buttocks, back, neck, anterior deltoid, chest and biceps, are the mus-

cles most used in all forms of athletics, sports, track and field games, setting up exercises, posture drills, etc., and are of fundamental importance in all the active industries. For this reason, I think it should precede any other all-round physical test in basic value.

In presenting this paper for discussion, I have intentionally narrowed myself down to a consideration of the factors involved in making the test, omitting the experience that has led up to it, and the application that may be made of it, and the method of conducting it.

To those who wish to try the experiment, I would suggest that the jump be made in gymnasium slippers or at least in shoes with low heels, and as the factors, weight, height and height jumped are to be multiplied and divided in the calculation, that all the measurements be made with the greatest accuracy.

If the test is of any value, then the standardization of it, and the collection of different data concerning it will of course be of the greatest importance, and follow naturally for the benefit of those who want to make use of it.

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THE SERVICES OF THE CLINICAL PSYCHOLOGIST[1]

CLINICAL psychology is but a branch of psychology; as psychology, in turn, is but a branch of science; and science, but a branch of the larger field of human experience. Any grouping of the men of science, leaves without the fold a much larger group of scholars yet unclassified. But human development and interests are closely related to, and affected by, the separate and combined experiences of all. It is only when the specialization becomes too narrow, overlooking the great fundamentals of thought and action, that progress ceases and the onward movement of civilization is hindered.

In the evolution of any subject of human learning, its helpfulness and dangers tend to increase in a geometric ratio. Hence, the Baconian advice to "Drink deep, or taste not the Pierian spring." There is a growing, pernicious tendency in education to narrow, differentiate and isolate subject matter from its fountain source, under the mistaken idea of simplification and of short-circuiting the natural processes of education. It is here especially that "A little learning is a dangerous thing." Our efforts in behalf of universal education (a necessity in an efficient democracy) are filling places of trust and great responsibility with uncultured brains of small caliber, a danger that might be avoided through better understanding of education and saner methods of teaching.

Civilization is passing through an epoch-making period. The destruction and after effects of war always create soul-racking disturbances, unbalancing weak and undisciplined minds. Such periods call for all that is good and true in heart and mind to stem the tide of evil. It becomes necessary to take an inventory of stock and to do some quick adjusting in order to prevent national and international calamities. Small minds lack vision, become lost in details, and can not sense the fundamentals that lead to higher levels. It behooves the scholar to keep his bearing and hold his light that it may be seen. The criminal wave that is now sweeping the country is probably due more to faulty nurture than to defective nature. The former is largely within the control of education, the latter only slightly so; but both can be greatly modified and in many cases corrected by intelligent treatment and right methods of instruction.

Is the insanity plea or mental defective condition of the criminal, which tends to mitigate punishment, true or false? If true, is it the result of nature or nurture? Is it curable? Does commercial psychology which

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lays chief stress on salesmanship and money-getting, tend to encourage waste and extravagance in buying, undermining thrift and the highest interests of civilization? Can the average individual be educated so as to glide smoothly from his lower selfish emotions to his higher altruistic emotions without break or jar? Is it the purpose of education to better the living conditions of humanity; to stimulate all children to become dynamic in living clean, wholesome, efficient lives in the interest and welfare of humanity? How can this be brought about?

Can we by beginning soon enough and irrigating deep enough guide the individual to become self-supporting, self-directing, self-sacrificing, in the interests of human welfare, enabling him to live and to breed up instead of down? Can we prevent the majority of the people from destroying with one hand the good they have created with the other? These and other similar questions, if answered at all, must be answered by the work and disinterested service of the clinical psychologist. The burden is heavy and can only be solved through the keenest scholarship of the best minds, and then only through soliciting and utilizing the best thought from all other fields of learning. The clinical psychologists have caught the vision. They are headed in the right direction. They need only patience and continued persistence to achieve the most promising results and the true scientist has both qualities in abundance.

The two most promising fields open at present for the services of the clinical psychologists are, in my judgment, the elementary schools and the juvenile court. No child should pass through either without receiving a careful physical and mental examination by the best of experts. Every correction that it is possible to make in the interest of human betterment, should be discovered before it is too late to be righted. The nature and capabilities of every child to be educated should be known and kept constantly in mind, the physical and spiritual health should be conserved and strengthened wherever and whenever possible. Intelligence scales for use in the schools should be perfected, or carefully worked over under varying conditions, refined and brought to the highest degree of accuracy. Better standards of living and doing should be set up and made sufficiently attractive to the average individual to become contagious. The moral ideals of the people should be aroused and strengthened. Practise always lags behind intelligence, but the chasm is not wide and should never become impassible.

We should increase our knowledge of the organic weaknesses and mental defects of the children, including the causes whether due to nature or nurture and the specific remedies. In plant and animal breeding, one goes back of the seed to a study of the nature of the stock; likewise, in the education of a people, one must go back of the child to be educated to a study of the nature and conditioning elements of the parents. When this is wisely and sympathetically done, there will be a great moral awakening of the present generation. Destructive and often filthy habits of otherwise good citizens, which through the effect of inheritance and the influence of example place such an unnecessary burden upon the children, will be greatly lessened if not completely overcome. Most citizens when once informed of the evil effects of personal habits on coming generations have sufficient manhood to make personal sacrifices for their children and for others whose minds are too weak to enable them to stand alone.

In a democracy public opinion when crystallized becomes invincible, but public opinion is fickle and unreliable unless it is based on the highest degree of intelligence. Democracy is a form of government permitting the largest degree of individual freedom and is quite responsive to the will of the people. Its successful operation depends more on the intelligence and general enlightenment of the people than any other form of government. It is within the environment of a democracy that the clinical psychologists of the United States must perform their services. Hence it becomes an important duty of the

clinicist to study the civic, political, and social situations and relations under which he must live and to which he must conform to accomplish the greatest good. Most people can be led, but few can be driven. Ignorant individuals or men of small or undisciplined minds are apt to be unusually stubborn and hard to influence when they have once set their heads in the opposite direction. If they are parents their children must suffer.

More and more we are coming to see that the chief purposes of education are to better the conditions of living, to make healthier, happier, and more efficient individuals. To stimulate all children to find themselves, to become self-sufficient, and to make the most of their opportunities. To accomplish these purposes the teacher must work with, on, and through the material as furnished to the schools. The clinical psychologist must discover how to improve the original product and how best to aid the teacher in making the most of the human material presented. The great practical services the psychologists rendered to the country during the war, in assisting the Army Personnel Board in rapidly recruiting a most efficient army, and the enlightenment of the people to actual conditions gained through that service, have called special attention to the importance that might be made of clinical psychology if properly applied to the education of the people.

The helpfulness of clinical psychology as applied to the treatment of patients in hospitals and feeble-minded institutes has aroused the enthusiasm of the humane and more intelligent public to its value if applied to the treatment of delinquents and the criminal classes. Thus the great need for specially prepared clinical psychologists has suddenly become apparent, but the demand is far in advance of the supply. Persons of meager training and little or no appreciation of the importance, seriousness and delicacy of the work, are filling the ranks and can not but disappoint the hopes of the public and bring discredit on the whole profession. It is therefore a duty and important function of the clinical psychologists to prepare an efficient body of trained clinicists of sufficient number to supply at least one thoroughly trained clinical psychologist to every county and city of the state and nation. In the reconstruction of education that must follow as a result of the war, the clinical psychologists must lead in setting up right ideals and standards of education, and in presenting the truth with sufficient clearness to be catching and impelling. The greatest function of all life is to give birth to wholesome individuals of pure hearts, keen minds, and large souls; and next to that, to teach the children of others to become pure of heart, keen of mind, and clean of character; and further, to enable these children to see and live the ideals that make for a better civilization. To aid constructively in this mission of human betterment is an important function of the services of the clinical psychologist.

G. W. A. LUCKEY

U. S. BUREAU OF EDUCATION

EDUCATIONAL EVENTS

THE PUBLIC SCHOOLS OF AUSTRIA

INSTRUCTION in the Austrian public schools according to reports to the daily press, has been radically changed recently by the Reform Department of the Ministry of Education. Instruction books, time tables and all the old methods have been abolished and the teachers have been given an entirely free hand in the placing of education on a basis of observation and practical experience. The reforms cover the first four years of school life and are being tried out at present in 4,600 schools. Under the reform system the teacher is free to do what he wishes with the children. There are no fixed hours for school, no bell, no reading of or text-books, no history, no geography, no fixed courses of study. Teaching becomes a matter of making the children observe for themselves and the school becomes a school of life. The classes will be conducted both in the schools and in tours of observation which have been prearranged with great care. The teacher beforehand explains the point of in-

terest in the observation tour and accompanies the children to point out details. The children are later required to tell about what they saw and the significance of each detail is brought home by the teacher. Thus in the course of the four years of observation the children will be taken to all points of historical interest in their neighborhood. They will be shown through the industries. They will visit the churches and the monasteries. They will see the farms and the vineyards, and they will be required to be familiar with the civil and industrial life of the nation. Then artistic taste will be developed by hearing good music and by free-hand drawing and visits to the art galleries. The instruction will be in German, and the children will be taught to express themselves correctly. Religious training is also included, but it is made to conform to the new system. Writing and reading are taught in the schools, and the plan provides that instruction in Latin must begin not later than the fourth year of school life. Singing exercises and gymnastics are also taught. The new system has, of course, made necessary the training anew of the teachers of the nation and thus is being done. Already summer classes have been held and these were well attended. All the teachers showed great enthusiasm over the reform plan, and it is asserted that the classes have been made far more interesting for both the teachers and the children.

THE COST OF EDUCATION IN ENGLAND

A CORRESPONDENT writes to *The Times Educational Supplement* as follows:

The public demand for intelligent economy is one which can be satisfied only after a close examination of relative expenditure and its results. Educationists claim, therefore, that the increased cost of other public services or amenities should be set out side by side with the increased cost of education, so that if drastic pruning is to be effected education shall not suffer disproportionately. The following facts may help to adjust controversy to a proper perspective.

1. It may first of all be useful to compare the national expenditure on elementary education with the national expenditure on drink and tobacco:

	1913–14 £	1919–20 £	Cost per unit £ s. d.
Elementary education ..	26,000,000	56,000,000	10 11 0
Drink	166,000,000	410,000,000	14 12 0[1]
Tobacco	———	181,000,000	6 0 0[1]

2. It may also be useful to show, by percentages, the increase in the Parliamentary votes for education as compared with the increase in the cost of other national services:

	1913–14 £	1920–21 £	Increase Per Cent
Education (Parliamentary votes)..	19,645,000	58,695,000	200
Railways (operating costs)	78,900,000	270,000,000	240
Coal, pithead value.	145,535,000	400,000,000 (say)	200
Armed Forces of the Crown	72,544,000	230,400,000	215

It may be assumed that about £100,000,000 is being spent this year on education by the state and by the municipalities combined. The police bill comes to some £70,000,000. If we added to the cost of the police the cost of prisons, Criminal Courts, and so on, we should find that as a nation we are spending as much in punishing crime as we are in educating away those factors which are so largely its cause.

3. The war indeed made it clear to all that the nation which did not train its youth would suffer inevitably in the struggle for world trade. The following figures for the United Kingdom should be noted in this connection:

	National Revenue	National Expenditure on Education	Per Cent
1913–14	198,243,000	19,645,000	10
1920–21	1,108,000,000 (excluding sale of war stores)	58,695,000	5

"In America," according to Mr. Claxton, the commissioner of education in the United States, writing in *The Times Educational Supplement* of September 9, "it is now generally held that expenditures for education must be doubled at least before the opportunities for education can in any adequate measure meet the needs of the people and the demands of public opinion." Our greatest commercial competitor is appropriating this year

[1] Adults.

$1,000,000,000 (say, £200,000,000) for education, and is apparently contemplating doubling this appropriation in the immediate future. Apart from this, we must bear in mind the great endowments of state lands and from private beneficence which are constantly increasing America's strategic reserve for the development of her educational activities.

PLAN TO RESTRICT THE ENROLMENT OF PRINCETON UNIVERSITY

A FACULTY committee has been appointed at Princeton University to consider plans to limit the student body of Princeton University.

President Hibben has made the following statement:

We wish to limit the enrolment to that number which we can properly accommodate and still maintain the character of our Princeton life and educational policy. We have always believed in the greatest possible amount of direct contact between teacher and student and likewise in concentrating the life of the university upon the campus. We do not feel that we can maintain the university's traditional policy and our present educational methods if we allow ourselves to be drawn into a policy of indefinite expansion.

Though there are other factors that enter into the situation, at the present time the deciding consideration must be that of sound educational policy. Financial difficulties, though with our present deficit of $212,000 they are serious, might be overcome.

In restricting our numbers it would seem that for the present we are also confining ourselves to sound financial policy. Our plans for the endowment campaign were drawn in the belief that we were making provisions for the work of the university for the next ten years. Based on the rate of increase in enrollment in the ten-year period from 1905 to 1915, it was assumed that the university's undergraduate body would not reach the 2,000 limit before the expiration of that period. In the year 1917–18, as a result of the war, the total number of undergraduates at Princeton was reduced to 898.

This year there are already in attendance 1,816 undergraduates and it would appear as if the 2,000 limit would be reached shortly. It appears that the dormitories at the present time have a capacity for accommodating only 1,275 students. The laboratories, the gymnasium and the library would also be crowded beyond their capacity and beyond the possibilities of doing effective work if the undergraduate enrolment were allowed to exceed the 2,000 limit. This would necessitate a large building program, upon which the university is now unwilling to enter, and seriously alter the character of Princeton's life.

It seemed to us that the moment had come when we must consider what policy we are to follow in the future, and whether we are to preserve our present character or allow ourselves to increase in size indefinitely, even at the cost of sacrificing much that we believe to be good in our present system.

SCHOOL APPROPRIATIONS IN ALABAMA

IT is reported by the Bureau of Education that increased aid from the state for erecting, repairing and equipping buildings for rural schools in Alabama was authorized at the recent special session of the state legislature by an amendment to the existing rural-school act. The appropriation for a one-room building was increased from $400 to $450 and for a five-room building from $1,500 to $2,300, with proportionate increases for two, three and four-room schools.

An appropriation of $1,500 was made to county high schools, with the provision that payment of $1,000 is obligatory, and that payment of the remaining $500 shall be made if and when in the opinion of the governor the condition of the treasury is such as to warrant the payment.

To provide for the vocational rehabilitation of persons disabled in industry and otherwise, the legislature appropriated more than $83,000 to cover a period of four years to equal the federal funds allotted to the purpose for Alabama.

By the same act the state board of education is empowered to make investigations relating to the rehabilitation of disabled persons; to promote the establishment of schools; to cooperate with local boards of education, organizations, and communities in the maintenance of such schools, departments, or classes; and to prescribe qualifications for teachers, directors, and supervisors of such subjects.

The act provides further that boards of education may use for this type of education any money raised by public taxes in the same manner as moneys for other school purposes are used in the maintenance and support of public schools.

Examination for mental and physical defects of every child attending the public schools of the state is provided by another law enacted during the special session. The bill states "that every public and every private or parochial school shall adopt a system of physical education, the character of which shall conform to the program or course outlined by the State Department of Education."

EDUCATIONAL NOTES AND NEWS

DR. G. W. A. LUCKEY, formerly dean of the School of Education of the University of Nebraska, has been appointed specialist in foreign education in the U. S. Bureau of Education, and will take up his residence in Washington on about February 1.

J. W. MCCLINTON, superintendent of schools, Pueblo, Colo., has resigned to become secretary of the National Bankers' Association. He is succeeded by J. H. Wagner, of New Mexico.

MR. JESSE B. DAVIS, president of the Junior College at Grand Rapids, Mich., has been appointed supervisor of secondary education for the state of Connecticut. Mr. Davis was principal of the Detroit Central high school for twelve years, principal of the Grand Rapids high school for thirteen years, and for the past six years has been the head of the Junior College in the latter city.

THE *Journal of Education* notes that in the recent election Miss Elsie Toles, of Tombstone, Arizona, is elected state superintendent by a majority of 6,000. She is the first woman to be elected, and the first Republican. The Democratic governor was elected by a majority of 3,000.

MR. GEORGE W. REAVIS has been appointed chief assistant to the Missouri state superintendent of schools.

PROFESSOR L. W. RADER, of St. Louis, has been promoted to be assistant city superintendent. Professor Philo Stevenson, formerly of the Webster School, succeeds Mr. Rader as supervisor of continuation schools.

EDWARD MANDEL, principal of P. S. 97, Manhattan, and Miss Ellen A. G. Phillips, principal of P. S. 2, Manhattan, have been appointed district superintendents of New York City.

MR. A. C. BARKER, of Vallejo, Calif., has been elected superintendent of schools at Palo Alto. Mr. Barker is succeeded at Vallejo by Mr. Elmer L. Cave, of Bellingham, Wash.

MR. FRED A. PRICE, formerly connected with the schools of Winslow, Ariz., and Burlington and Council Grove, Kans., has been elected superintendent at North Little Rock, Ark.

CARROLL C. PRATT has been appointed instructor in experimental psychology at Clark University.

DR. FRANCES SAGE BRADLEY has been assigned by the Children's Bureau to work out some special projects and plans for the study and care of children in rural communities in connection with the school of public welfare of the University of North Carolina. She will begin these plans on January 3, and will work in conjunction with the faculty of the university and with the students who are doing field work.

THE University of North Carolina, through its School of Public Welfare, has been holding a series of district conferences on public welfare. Each conference is planned to include approximately ten counties. The state commissioner, Mr. R. F. Beasley, members of the American Red Cross, and other volunteer agencies have joined in these conferences, the purpose of which is to coordinate all social work being done in the counties. Conferences have been held so far at Salisbury, Fayetteville and New Bern.

PAUL WITHINGTON, M.D. (Harvard, '14) has inaugurated a system of physical examinations and required games and exercises for the boys

of Punahou School, Honolulu, similar to the system in force at Harvard.

PERCY R. CARPENTER, who has been for 26 months in France as a director of athletics in the *Foyer du Soldat* of the French Army and Navy, and who was for some time a member of the French National Committee on Physical Education, has returned to his position as head of the department of physical education of the Worcester Polytechnic Institute, Worcester, Mass. While in France, Carpenter introduced a program of American athletics which was adopted by the French Army and Navy in their schools of physical training. He also organized and directed physical education and the playground movement in many French cities and did much work among the civilians in the devastated regions and among the Boy Scouts.

GOVERNOR MILLER in his address before the New York State Bar Association is reported to have made the following statement:

> In this city recently the Board of Estimate eliminated from its budget an item of $27,000,000 for schools and appropriated only enough to run the schools until next summer, on the theory that somehow the schools would run because they would have to run, and apparently hoping if the locality did not attend to it the state would, and thus undertaking to shift to the state the responsibility of the locality.
>
> It was not realized that if that rule were to be adopted, and if the state were to undertake the maintenance of our educational system—and it has started to do so to a large extent—the results would be, so far as the City of New York is concerned, that it would not only pay for the maintenance of its schools but would help in large measure to maintain the other schools of the state, due to the centralization of wealth and property in this community.

FOREIGN EDUCATIONAL NOTES[1]

M. PAINLEVÉ, professor of mathematics at Paris and former prime minister has returned from China to which he had been sent on a mission concerning Chinese universities and railways. He has obtained from the Chinese government the promise of an annual subvention of 100,000f. for an institute of Chinese higher studies in Paris. The Chinese government has also agreed to the creation, in one of the Chinese universities, of an affiliated branch of the University of Paris, and it will devote to this purpose the sum of 500,000f. annually, on condition that the French government gives the same amount. The Chinese president has further promised to have reproduced the collection of four great classics which contain the essence of Chinese civilization, and to present three copies to France. These volumes run to not less than 5,000,000 pages.

THE circular issued by Raymond Poincaré, president of the Société des Amis de L'Université de Strasbourg, shows that the following Americans have subscribed 2,000 francs to the university: Albert Blum, Henry Blum, John J. Chapman, C. A. Coffin, Charles D. Hazen, James H. Hyde, A. L. Lowell, Eugene Meyer, J. P. Morgan, Julien Neltner, Edmund Weill and Raphael Weill. The following Americans has subscribed 800 francs: Nicholas Murray Butler, P. A. Cartier, F. P. Coudert, Charles W. Goodyear, W. D. Guthrie, James How, Charles Lieffler, Fanny P. Masson, Roscoe R. Mitchell, Frankin D'Olier, Andrew Platt, Emil Rey, Francis Weed and Felix Wildenstein.

THE French government is said to have acquired the permission, and granted the funds, for the establishment of French schools in Livonia. As far as possible, and for the time being, these schools will be housed in the buildings now occupied by the native schools.

EDUARD SIEVERS, professor of Germanic philology at Jena from 1871 to 1883 when he was called to Tubingen and then to Halle and finally to Leipzig in 1892 as the successor of Friedrich Zarncke, has just celebrated his seventieth birthday. Whatever we may think to-day of Sievers's theories, particularly those that have to do with speech melody and the like, his contributions to the study of phil-

[1] Contributed from the editorial office of the New York *Evening Post*.

ology have been extraordinarily substantial, while there is hardly a Germanic Seminar in the United States that does not owe its initial inspiration, mediate or immediate, to the seminar Sievers conducted with unqualified distinction at Leipzig, though his own debt to Zarncke is far from negligible.

ROBERT SEIDEL, regarded by the Germans as the father of the school for the working classes, celebrated his seventieth birthday on November 23. Seidel, born in Saxony of poor parents, had gradually risen until in 1907 he became President of the City Council of Zurich. He has written a great many pamphlets in the interest of schools for the working classes, and it is said that he is directly responsible for Article 148 of the present German constitution which provides for instruction for the working classes. For a number of years he taught education in Zurich.

THURE HEDMAN, according to *Dagens Nyheter*, has been appointed professor of German at the University of Toronto. Herr Hedman was born at Oestersund, Sweden, in 1886. After a varied career in England and Canada, where he was engaged in one humble calling after another, he entered the State University of Washington, went from there to the University of California and was graduated at the University of Chicago. He then returned to Europe for advanced work and was called to Queen's University as professor of esthetics and modern literature.

ALBERT EINSTEIN will begin a series of lectures in Vienna in January, 1921. Einstein has expressly stipulated that there are to be no banquets, nor any other display of popular interest in his coming, other than what will draw the attention of qualified auditors to his message.

OWING to the dropping of the title of *professor extraordinarius* in the Prussian universities, the promotion of the *privatdozent* has been proportionately delayed. The latter class have entered a violent protest on the ground that to hold the title of *privatdozent* unduly long not only cripples the holder financially but hurts him in the estimation of a public accustomed to seeing men advanced after a certain amount of service.

ALL those who give private instruction in Vienna have organized a union and agreed to charge not less than 40 kronen per hour, nor more than 50 kronen. In pre-war days it was possible to secure excellent tutors in Vienna for less than 5 kronen per hour.

MR. HERBERT LEWIS, parliamentary secretary to the Board of Education, has replied to those who contend that England is spending too much money on education in the following words:

> We, at the Board of Education, are watching every halfpenny. For every pound of public money we mean to get a full pound's value. When people demand the suspension of the 1918 Act we are prepared to fight the matter out before the public, not doubting that a referendum would show an overwhelming majority against the suspension. By its suspension no considerable economy would be secured. During the last two years the increase in education estimates is £26,000,000, of which about £300,000 is due to new developments. The remainder is due to general economic causes and is required to keep the educational machinery at the 1914 level.

CONVINCED that there is too much routine, too much discipline, too much lock-step in the schools, E. F. O'Neill has opened a school without a time-table at Kearsley, on the outskirts of Manchester, England. The pupils are given full liberty to choose their own teachers, they work when they please, as they please, and at what they please. No pupil is stopped in the middle of a task, nor is he forced to take up one that does not make an appeal to his very mature imagination. No one would thing for a minute of throwing cool water on an educational scheme that will bring lasting and beneficial results. But if a child learns anything during his first five or ten years of schooling it is to set his mind to some task that is not wholly pleasing at the time. Life is life, and the doing of life's tasks requires will power.

AUSTRIA is planning to open a folk school at Hainburg, Lower Austria, modelled after the Danish folk schools. It will be coeduca-

tional and intended to serve the needs of those who are young, poor, ambitious, and capable of being mutually helpful.

THE study of agriculture at Oxford is now given full credit and dignity. In addition to the B.A. degree a diploma in rural economy is granted. As early as 1796 Oxford established a professorship in agriculture, but it was not until 1906 that the matter was taken seriously, and not until the present that adequate provisions were made for extended study of farming, cattle breeding and related subjects.

OTTO JESPERSEN, professor of English at the University of Copenhagen and rector of the university for the present year, said latterly to a member of the editorial staff of *Politiken* that Denmark stood in serious need of an additional university. Professor Jesperson claims that Copenhagen is overcrowded and in need of competition. He suggests Aarhus as the most suitable town for the new university, other places, such as Viborg, being too small. The matter has already been taken up with the Board of Trade of Aarhus.

HERETOFORE Brazil has had no regularly coordinated university though she has had individual faculties vested with the power to confer degrees. The faculties of law and medicine and the polytechnic institute of Rio de Janeiro have now been combined and will be known henceforth as the University of Rio de Janeiro.

ONE of the most far-reaching events in Germany since the signing of the Armistice was the recent meeting in the Reichstag Building, presided over by Professor Harnack, for the purpose of devising a scheme whereby Germany's scientific institutions could be saved from financial collapse. As a result of the conference, the bankers, merchants and capitalists in general have agreed to give German science the money it needs, provided it will weed out unnecessary schools, stop reduplicating, subscribe to fewer foreign magazines, and get on a basis of general business efficiency. It is the hope of Berlin in particular to become the world center for medical study. The statement was made that Germany can not afford to have New York carry out its ambitious plan to attract medical students from all over the earth. If Germany's millionaire's really come to the rescue of her universities, great things may be expected, for there were never so many men of wealth in Germany as at this present moment.

SPECIAL CORRESPONDENCE

EDUCATION COURSES IN THE UNIVERSITY OF MICHIGAN SUMMER SESSION, 1921

IF evidence were needed to show the keen interest which is being taken in America in teaching as a profession, the curricular offerings, the roster of instructors, and the enrollment figures of students in attendance in connection with the summer sessions of some of the departments of education in colleges and universities would furnish the necessary data. The situation at the University of Michigan is a case in point.

The department of education in the University of Michigan was established in 1879, the chair being the first of its kind devoted exclusively to the teaching of pedagogy in any university in America. At the outset, and for twenty years thereafter, one professor alone conducted all the courses that were offered and found difficulty in gathering together sufficient material to keep himself and his classes occupied throughout the college year. The work centered about the philosophy and history of education and consisted, to a large degree, of interpretations and criticisms of certain old but reverend educational classics. There was no real science of education and little exhibition of education as an art.

A professor's full quota of teaching hours in 1879 was, as now, approximately ten per week. At Michigan the professor in charge of education (or the science and art of teaching, as the department work was styled) devoted the customary ten hours to academic work of the accepted type and, in addition, offered a one-hour course on practical problems relating to methods of teaching and class-room management. Eleven semester

hours, therefore, became the standard number of hours of "professional" training demanded of prospective teachers graduating from Michigan, for the simple reason that forty years ago there was not sufficient material of a professional character to furnish more. Eleven semester hours likewise became established in the statutes providing for life certificates issued to teachers by certain denominational schools of the state, and eleven semester hours, by the force of this tradition, became the required number of hours demanded of teachers by the powerful standardizing agency, the North Central Association of Colleges and Secondary Schools. And the rule stands to this day.

With the opening of summer sessions in connection with universities about 1895, and with the more recent development of the scientific side of education, a veritable revolution has taken place in respect to the range, kind and nature of the curricular offerings, in the numbers of students pursuing the courses, and in the size of the staffs devoting their time to the work. While these changes are noticeable in the regular sessions of colleges and universities, they are especially conspicuous where summer sessions are considered.

For illustration, take again the case of the University of Michigan. In 1900 two men in the department of education offered two courses, each, to an aggregate number of students of less than one hundred. For the summer session of 1921, the roster for the same department contains 21 names, and the total number of courses offered is 27, or an aggregate of 54 semester hours credit. The courses are:

1. History of Education in the United States.
2. Psychology of Education.
3. Introduction to Mental Testing.
4. Individual Intelligence Testing.
5. Group Intelligence Testing.
6. Introduction to Educational Measurements.
7. Principles of Education.
8. Advanced Mental Testing.
9. Psychology and Education of Exceptional Children.
10. Minor Problems in Educational Psychology.
11. Test and Scale Construction.
12. Psychology of Common School Branches.
13. Social Education.
14. School Administration (General).
15. Principles of Method (Elementary School).
16. Business Management in Public Schools.
17. High School Administration.
18. Administrative Problems of the Large High School.
19. The Junior High School.
20. Methods of Teaching in High School.
21. Rural Education.
22. School and Personal Hygiene.
23. Administration of Physical Education.
24. Administration of Vocational Education.
25. The Compulsory Part-Time School.
26. Vocational Guidance.
27. Foremanship Training.

C. O. D

DISCUSSION AND CORRESPONDENCE

COURSES IN CITIZENSHIP

TO THE EDTOR OF SCHOOL AND SOCIETY: Dean Pound's address at the inauguration of President Burton was published in your issue of November 27, 1920. With Dean Pound's statement of the importance of the university's influence on citizenship and his desire that college life should contribute to better citizenship I hope all your readers will agree. My purpose in this letter, however, is to question his objection to providing a definite place in the curriculum for discussion of topics related to citizenship. Dean Pound takes the position that the college should not offer courses in citizenship, though he usually qualifies the word "courses" with the word "formal" and sometimes with "dogmatic." He fails to recognize the fact, however, that all courses need not be formal and none need be dogmatic. Should not his objection to courses as such, therefore, have been directed at a constructive criticism of the lecture system as the sole method of conducting courses? As the speech stands, it seems to me an indictment of all college work, whether in literature, economics, sociology, education, business, or engineering. Does he favor civics courses in the high schools and ele-

mentary schools? There too, should courses be neglected, and citizenship be inculcated by the plan proposed, in which "every man finds himself living with his fellow men in a condition of social interdependence in civilized and politically organized society"?

One is constantly left wondering whether Dean Pound thinks that formal courses and dogmatic courses in which the professor expounds and imposes his own viewpoint are the only kinds of college teaching possible. I once heard a Harvard professor in a Municipal League Convention at Los Angeles, California, declare that the business of a college professor was to train up men to disagree with him. A number of college teachers have shown the practicability of combining lectures, individual search for the truth, and strenuous discussion about that truth as seen by different minds. Such discussion frequently leads into opinions in which students disagree with each other and with the point of view of the instructor.[1]

No doubt even the dogmatic professor will find his students driven to disagree with him; I can not, therefore, share Dean Pound's fear of dogmatic instruction in the college, though no doubt such instruction does more harm in the lower schools. But the neglect of all courses in citizenship inevitably raises the question, What is the college for? If the college works normally through its courses, and if these courses are to provide opportunities for students to think about human problems under wise direction, how can we possibly neglect this important phase of human activity? If college students are to graduate with no preparation for citizenship other than that derived incidentally, and with no systematic and strenuous effort to understand the intricate forces of civic life, one questions whether the college is making the best contribution which it can, to the individual development and satisfactory growth of its students. Clearly the duty of a college in training for citizenship is to educate students in the search for better information on the problems of civic and social life and this can best be done in college courses if rightly conducted.

[1] See "The College Teacher's Function—Some Worthy Platitudes Restated," by Arthur J. Todd, SCHOOL AND SOCIETY, Vol. III., No. 55, January 15, 1916.

JOHN M. BREWER
GRADUATE SCHOOL OF EDUCATION,
HARVARD UNIVERSITY

INTELLIGENCE TESTS AND ACADEMIC CREDIT

TO THE EDITOR OF SCHOOL AND SOCIETY: In your issue of January 15, Toledo University is taken to task for the fact that "any student twenty-five years old who can present ten credits . . . may substitute for the other five an intelligence test."

I present the following examples under this system for the judgment of your readers. A high official in the great Overland Automobile Plant, having taken courses some years at Toledo University, wished to work toward a degree. In his youth there were few four-year high schools in his section; he had finished a three-year high-school course equal to eleven entrance units. Did the entrance committee make a mistake in accepting for the remaining four units an intelligence test plus an investigation of his executive career? Or should the committee have required this man, who has enough intelligence to handle more than $15,000,000 worth of production each year, to pass a written test on "Evangeline" and "King Lear"?

Entrance tests are given to discover whether an applicant has the intelligence of an average college freshman—God save the mark! The committee is absolutely certain that this mature executive has even more than that amount of intelligence, and a test in Irving's "Sketch Book" and Poe's "Gold Bug" was not necessary to prove the fact.

The writer of the criticism of this method wonders "whether an intelligence test is to be accepted as a substitute for one third of the graduation requirements also." Good idea! I have long wondered what plan could be devised to "choke off" some portion of the annual crop of B.A.'s. This is the solution. Give the applicants an intelligence test in lieu

of one third of the graduation requirements, and the crop will be reduced fifty per cent!

CARL HOLLIDAY

QUOTATIONS

EDUCATION IN PENNSYLVANIA[1]

THE solemn obligation rests upon the General Assembly to provide adequate educational facilities for the 1,750,000 children in this commonwealth. Pennsylvania's system of education must be so complete and comprehensive that it will meet the modern demands of our complex American life. The State Department of Public Instruction has been reorganized for the purpose of developing such a system of education, of making it coherent and effective, of administering it upon sound professional and business principles, of providing assistance and stimulus to every educational agency and institution in the state as well as to each community, and of giving leadership and interpretation to the patriotic ideals of our people.

The state's plan of administration and the essential minimum standards which it exacts in education should be expressed in sound legislative enactment. I therefore make the following recommendations in relation to education:

First, that the State Board of Education and the College and University Council be abolished and that, in place thereof, one board be established, to be known as the State Council of Education. All of the commonwealth's educational activities, including all independent boards and agencies related to public education, should be coordinated under general supervisory powers of such Council.

Second, that the conditions which permit the employment of several thousand unqualified teachers in our public schools should be remedied as speedily as possible. The surest and best way to reach this result is through the enactment of a law requiring proper qualifications for all teachers and encouraging them to fully prepare themselves by guaranteeing to them salaries which will be commensurate with the services they render.

Third, that the state normal schools be utilized to their fullest possibilities in the training of teachers, that adequate financial support be provided for these institutions to meet the instructional expenses, and that the housekeeping of such institutions be placed upon a self-supporting basis. To accomplish this result a budget system for the state normal schools should be established.

Fourth, that the laws regulating the school term and compulsory attendance be modified so that equal educational opportunity shall be accorded every boy and girl in the Commonwealth. The least which the state may demand for each child is the completion of an elementary education.

Fifth, that such increased state aid be given public education as the condition of the revenues, the business affairs of the Commonwealth, and sound school financing will allow.

The census of 1920 shows that there are approximately 418,000 adults in Pennsylvania who can not read or write. These are found in every county of the state. In 43 of the counties the number of illiterates ranges from 1,000 to 79,125. This vast army of illiterates can share in only a limited way in either the opportunities or the obligations which citizenship in this commonwealth affords. They will not be able to make their greatest contribution to American life or realize its complete advantages until they have acquired the ability to transact their own private affairs and to make known their desires and needs in English—the common language of the country. To be sure, the great majority of those unprepared are of foreign birth, but our duty in the premises is none the less urgent. We have invited these people here to help us in our tasks of development, we have profited by their art and industry, and we must give them every opportunity to attain their full stature, mental, moral and spiritual. I recommend, therefore, that an effective state-wide program for the elimination of adult illiteracy be inaugurated without delay by establishing a Bu-

[1] From the address of Governor William C. Sproul to the General Assembly of Pennsylvania, January 18, 1921.

reau for that purpose in the Department of Public Instruction.

EDUCATION IN ILLINOIS[1]

IT was ordained in the first American charter for the government of the territory in which we live that schools and the means of education should forever be encouraged. This sentiment was echoed in our state constitution, which declares that "The General Assembly shall provide a thorough and efficient system of free schools whereby all children of this state may receive a good common school education."

Our state has never failed in its duty in this regard, and it will not fail now. On account of the importance and bigness of this subject, I shall not attempt here a discussion in detail of particular changes, and shall reserve definite recommendations until the developments of the session, particularly with reference to the amendment of the revenue laws, shall show how far we can go in the adoption of further legislation required by our advancing civilization.

The position of the teacher in our social fabric is one that needs thorough readjustment. Underpay and ingratitude on the part of the public for the invaluable service rendered to the state by the teaching force employed in our public schools has been, too often, the common lot of these faithful servants engaged in the basic work of true Americanization. There should not be an underpaid school teacher in the state of Illinois.

Salaries and school equipment should be such that the very best and highest types of men and women are attracted to the profession of teaching.

The common schools, the normal schools and the state university are all seeking to enlarge their respective fields. If we are to extend their usefulness, we must be prepared to increase their appropriations. I say now, as I said before my election, that our educational institutions are the foundations of good government and of the well-being of our state. Their improvement should be constantly sought and their growth should be encouraged, for with them lies the future stability of our commonwealth.

The worthy additions requested could be granted without increasing the tax rate if the General Assembly gives favorable consideration to the recommendations made in that portion of my message devoted to the subject of taxation.

[1] From the inaugural message to the Illinois legislature of Governor Len Small.

LOS ANGELES EXHIBIT OF TESTS AND MEASUREMENTS

THE Department of Psychology and Educational Research had, as its share of the Teachers' Institute and meeting of the Southern Section of the California Teachers' Association, at Los Angeles an exhibit of educational tests and measurements for the perusal and study of teachers and visitors. Fourteen rooms were occupied at the Grand Avenue School Building throughout the week. Approximately two thousand teachers attended the exhibit.

Development School Exhibit: Three rooms were occupied with the work of feebleminded children in the Los Angeles City Schools, representing twenty-seven rooms. Cooking, sewing, knitting, weaving, furniture repair and manufacture, etc., together with school records displayed with graphic methods found their place in this exhibit.

Elementary Tests and Measures: One room was devoted to the reading, writing, and arithmetic tests, as well as the intelligence tests used in the primary and grammar grades. These were displayed with notations as to price, and directions as to procedure.

High School Tests and Measures: A similar exhibit of subject matter and intelligence tests was displayed for the benefit of high school and vocational teachers.

Employment Managers' Exhibit: With the assistance of the Employment Managers' Association of Los Angeles, samples of blanks used in the employment department of a number of Los Angeles business houses were on display. There were also displayed copies of the army trade tests and a variety of occupations' tests, available through the cooperation of the Carnegie Institute of Technology at Pittsburgh.

University of California Exhibit: The exceptional work of Mrs. Waring, in charge of special room work at the Training School, Southern Branch of the University of California, was visited by a large number of teachers. Teachers' devices and tests and self-correcting exercises were features of the exhibit.

University of Southern California Exhibit: With the help of Dr. Stormzand, assistant professor of educational psychology, a display of tests and measurements was made under this head.

Publishers' Exhibit: With the cooperation of a number of publishers, the new books on Project Method, Tests and Measurements were on display, and were evidently of great interest to a number of teachers.

Scientific Apparatus: The C. H. Stoelting Company of Chicago, manufacturers of psychological apparatus and publishers of tests, sent on a display of apparatus and tests. The Jones Self-Correcting School Exercises also were on display in this connection, as well as the Los Angeles Tests, published by the W. A. Abbott Company of South Pasadena.

Teachers' Devices: A number of teachers, with the courage of their convictions, displayed forms which they have found useful in overcoming children's difficulties in school.

Round Table: Each afternoon in connection with the section on tests and measurements, someone prominent in the community in using tests and measurements was on hand to explain and discuss the uses and value of the tests to any teacher in the grades.

EDUCATIONAL RESEARCH AND STATISTICS

SOCIALIZED ATHLETICS

ONE hundred and thirty-two boys and girls have been rated in athletic ability in six field and track events in meets held under the auspices of Pensacola (Florida) Community Service. The median of ability, as found by the somewhat arbitrary point method used, is 18.5 per cent that of an all-round adult athlete.

TABLE I

(See Plate 1)

Ratings of Boys and Girls, by Years

Girls			Norms, Per Cent.	Boys		
Age	Cases	Ratings, Per Cent.		Age	Cases	Ratings, Per Cent.
6....	5	3.7	5	6	3	6
7....	8	10.0	10	7	5	10
8....	7	11.0	15	8	6	15
9....	9	17.0	20	9	13	21
10....	6	23.0	25	10	11	22
11....	8	26.0	30	11	6	26
12....	4	25.0	35	12	16	32
13....	2	26.0	40	13	10	34
14....	2	30.0	45	14	10	43
15....	2	43.0	50	15	5	44

Plate 1: Graph of ability of 53 girls and 85 boys in field and track athletics.

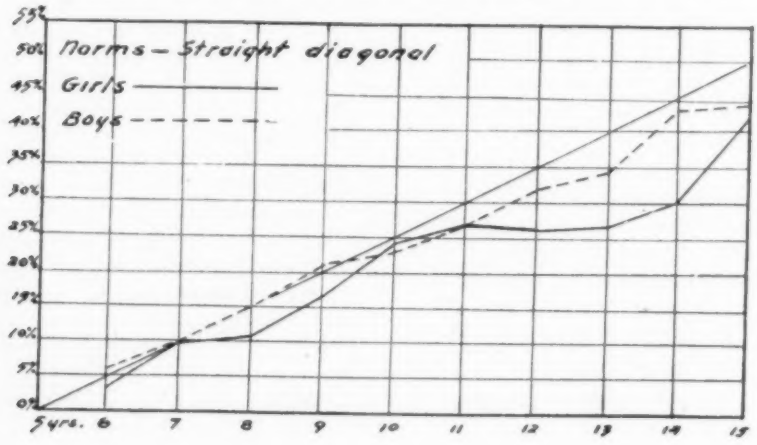

Plate II: Graph of athletic ability of boys and girls making highest rating.

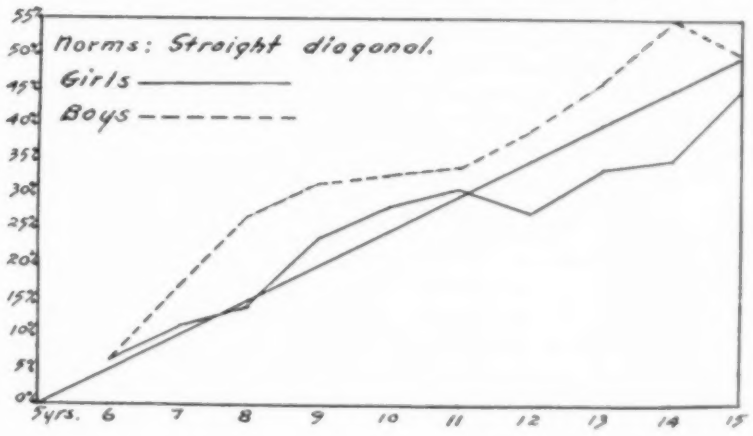

TABLE II

(See Plate 11)

Highest Rating of Boy and Girl, by Years

Girls			Norms, Per Cent.	Boys		
Age	Cases	Ratings, Per Cent.		Age	Cases	Ratings, Per Cent.
6....	1	6	5	6	1	6
7....	1	11	10	7	1	17
8....	1	14	15	8	1	26
9....	1	24	20	9	1	31
10....	1	30	25	10	1	32
11....	1	31	30	11	1	34
12....	1	27	35	12	1	39
13....	1	34	40	13	1	47
14....	1	35	45	14	1	55
15....	1	41	50	15	1	50

The ability of both boys and girls, between the ages of six and fifteen (inclusive) years, is represented by the graph.

The line of norms is an unwarranted assumption. However, it is inserted; for the sake of illustration. As made, it implies a 5 percent. increase in ability each year.

The extreme cases have not been struck out. The lines are, consequently, even more irregular than they would, otherwise, have been.

The method of scoring allows one point to a contestant for:

(1) Each inch over 24 in the high jump,
(2) Each three inches over 72 in the broad jump,
(3) Each two inches over 36 in the pole vault,
(4) Each $\frac{1}{5}$ sec. under 14 in the 50 yard dash,
(5) Each $\frac{1}{5}$ sec. under 20 in the 100 yard dash,
(6) Each $\frac{3}{5}$ sec. under 50 in the 220 yard dash.

Upon this basis, the all-round adult athlete would, at his best, score approximately 300 points. This score is given a rating of 100 percent. The ratings of the Pensacola boys and girls are based upon this percentage. (Later they will be based upon the norms for the several years.)

The purpose of the method is to bring all boys and girls into active, voluntary participation in athletics. This is being accomplished by motivating participation through the device of placing a value—a team scoring value—upon the performance of each contestant.

An incidental value of the method may prove to be data regarding the relative athletic ability of boys and girls of various ages, of difference in race, nationality, economic and social circumstances and experience.[1]

EDWARD GILCHRIST

PENSACOLA, FLORIDA

[1] *Vide* SCHOOL AND SOCIETY, Vol. VII., No. 177, pp. 597–599, May 18, 1918.

SOCIETIES AND MEETINGS

ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF UNIVERSITY PROFESSORS

THE annual meeting of the association was held at the University of Chicago on Monday and Tuesday, December 27 and 28. The number registered was 125, representing more than fifty institutions. This was the first meeting of the assocation held under the new system of delegate representation, which is probably not yet so fully in operation as it will be in the near future. No distinction between delegates and other members was made except in registration and no proportionate voting proved necessary.

The principal business of the meeting was the discussion of committee reports, of which the first in order of presentation was that on Pensions and Insurance by Chairman Stone of Columbia University. The text of the report reviews recent correspondence with President Pritchett of the Carnegie Foundation and closes with the following paragraph:

> Despite the barren results of the negotiations between this committee and the representatives of the insurance company, it is believed that the abandonment of the original proposal to exclude from the benefits of the existing pension system all teachers under 45 years of age, the appropriation of approximately $11,000,000 to meet to a limited extent the obligations of the existing system, and certain minor modifications of the insurance plan, are due in a large measure to the effort of this committee. It is believed also that a committee of our association authorized to investigate the present operation of the original Carnegie pension plan in the light of its actual experience, and to inquire whether the plan could not be modified so as to increase its benefits to teachers entitled to receive them, could render a useful service.

The association then proceeded to a discussion of the questions presented by Committee T—on The Place and Function of Faculties in University Government and Administration. The interest in the question led to a protracted discussion and it seemed probable that this might be continued with advantage in meetings of local branches during the year, particularly in view of the necessary dependence of a choice among the alternatives proposed on local conditions. On motion of Mr. Goldfarb of New York City College it was voted that Committee T be continued with request to report progress made in different colleges and universities.

The afternoon session opened with an informal report from Committee G—on Intellectual Interests of Undergraduates, represented in the absence of the chairman by E. H. Wilkins, of the University of Chicago, and G. A. Miller, of the University of Illinois. Extended discussion by delegates and members followed.

Chairman Ellis of the committee on "Status of Women in College and University Faculties presented an extended preliminary report, which will be published in an early number of the *Bulletin*.

At the session Tuesday morning, Chairman Deibler of Committee A presented a report.

Vice-chairman More, of Committee Y—on the Formulation of Guiding Principles (in the absence of Chairman Thilly) reported informally on the results of the committee's discussion by correspondence of the proposed declaration of principles, published in the *Bulletin* for November, 1918. Considerable criticism developed and no action was taken by the association.

All proposed constitutional amendments were adopted, including provision for members from Canadian institutions.

The council reported the appointment of a new committee on Plans for Sabbatical Years.

The following officers were elected: President (election referred to the Council in view of the declination of the nominee); Vice-president, W. L. Phelps (English), Yale; Treasurer, Harris Hancock (mathematics), Cincinnati; members of the Council for three years: F. G. Allison (Greek), Brown; J. V. Denney (English), Ohio; F. S. Dunn (Latin), Oregon; S. B. Fay (history), Smith; Irving Hardesty (anatomy), Tulane; M. W. Haskell (mathematics), California; B. Karapetoff (electrical engineering), Cornell; Max Mason (physics), Wisconsin; H. L. Rietz (mathematics), Iowa; C. J. Tilden (engineering mechanics), Yale.